Appendix G.

SOP – Maintenance of PM_{10} and TSP High Volume Air Samplers

- Routine Maintenance
- Motor Brush Replacement
- Troubleshooting / Corrective Maintenance

ROUTINE MAINTENANCE

TE-6000 Series, TE-6070, TE-6070D

A regular maintenance schedule will allow a monitoring network to operate for longer periods of time without system failure. Many users find the adjustments in routine maintenance frequencies are necessary due to the operational demands on their sampler(s). We recommend that the following cleaning and maintenance activities be observed until a stable operating history of the sampler has been established.

1. Inspect all gaskets (including motor cushion) to assure they are in good shape and that they seal properly. For the PM-10 Inlet to seal properly, all gaskets must function properly and retain their resilience. Replace when necessary.

2. Power cords should be periodically inspected for good connections and for cracks (replace if necessary).

   CAUTION: Do not allow power cord or outlets to be immersed in water.

3. Inspect the filter screen and remove any foreign deposits.

4. Inspect the filter media holder frame gasket each sample period. This gasket must make an airtight seal.

5. For Brush type systems: Check or replace motor brushes every 300 to 500 hours. If motor has exhausted brush changes, then replace motor.

6. Insure the elapsed time indicator is operating by watching under power.

7. Be certain the continuous flow recorder pen is making contact with the chart and depositing ink each sample period. Be sure the door is sealed completely. Tubing should be inspected for crimps or cracks. Replace when necessary.

8. Clean shim plate periodically, excess dirt will cause false reading and bounce of heavier particulate. See Section SAMPLER OPERATION

9. Be certain the alignment pins are aligning properly. The upper and lower tubs must have an airtight seal.

Be careful not to bend any parts of inlet out of their original aerodynamic shape, mainly the hood, acceleration nozzle plate, nozzles and vent tubes.

MOTOR BRUSH REPLACEMENT TE-6070, TE-6070D MFC PM10

(110v Brush part #TE-33384)
(220v Brush part #TE-33378)

CAUTION: Unplug the system from any line voltage sources before any servicing of blower motor assembly.

1. Remove the blower motor flange by removing the four bolts. This will expose gasket and the TE-116311 motor (220v Motor TE-116312).
2. Rotate the assembly on it's side, loosen the cord retainer and then push cord into housing and at the same time let motor slide out exposing the brushes.
3. Looking down at motor, there are 2 brushes, one on each side. Carefully pry the brass tabs (the tabs are pushed into end of brush) away from the expended brushes and toward the armature. Pry the tabs until they dislodge from the brushes.
4. With a screwdriver loosen and remove brush holder clamps and release TE-33384 brushes. Carefully, pull the tabs from expended brushes.
5. Slide the tabs into tab slot of new TE-33384 brush.
6. Push brush carbon against armature until brush housing falls into brush slot on motor.
7. Put brush holder clamps back onto brushes.
8. Make sure the tabs are firmly seated into tab slot. Check field wires for good connections.
9. Insert the motor by placing housing over while pulling power cord out of housing. Be certain not to pinch the motor wires with the motor spacer ring.
10. Secure power cord with the cord retainer cap.
11. Replace blower motor flange on top of motor making sure to center gasket.

IMPORTANT To enhance motor life:

1. Change brushes before brush shunt touches armature.
2. Seat new brushes by applying 50% voltage for 10 to 15 minutes, the TE-5075 brush break in device allows for the 50% voltage.

Troubleshooting/Corrective Maintenance Procedures

The following is a list of possible problems and the corrective measures.

Shelter: There is nothing on the anodized aluminum shelter that can wear out. In the event a system is dropped or blown over, some shelter parts may become bent. Simply re-shape the bent components or replace them as necessary.

Blower Motor: If the blower motor does not function, perform the following test: 1. Unplug the motor from the flow control device or timer. 2. Plug the motor directly into line voltage. If motor does not operate when plugged directly into line voltage, replace with new motor. If motor operates when plugged directly into line voltage then: See "Electrical Hook-Up" schematic. If motor still does not work, see timer and flow controller instructions.

Dickson Continuous/Flow Pressure Recorder: Not inking properly: replace pen. If pen arm is bent or pen arm lifter is damaged, thereby not allowing pen point to contact chart, replace the pen arm or pen arm lifter as necessary. A tight door seal is necessary to prevent drying of pen, replace if necessary. If pen does not respond properly to pressure/flow signal one of two solutions are available: 1. No rotation of chart indicates a defective chart drive. Replace as necessary. 2. Out of adjustment flow indications may exist if one adjusts the "adjustment screw" beyond its range. This condition allows the bellows to make contact with the chart drive thereby making the bellow movement inaccurate. Factory re-adjustment is necessary.

Filter holder: Two gaskets make contact with the filter holder. The 8" x 10" gasket seals between the shelter base pan and the flange of the filter holder. If this seal is compromised, replace the 8"x 10" gasket. The lower section of the filter holder is sealed against the blower with a round neoprene rubber gasket. This gasket should be replaced if any leakage is evident.

Filter Media Holder: The filter media holder uses the 8" x 10" gasket to seal between it and the filter holder. Another 8" x 10" gasket is also used on the filter media holder to seal between the filter hold-down frame and the filter media itself. If leakage is evident, inspect the gasket for foreign objects and replace as necessary.

Timer: If the timer does not activate the system at the desired time, see "Electrical Hookup Schematic" and timer instructions.

Size Selective Inlet: Inlet does not fit onto shelter: it is critical to install in inlet in a vertical path onto the shelter. Many times it will take two people to gently lower the inlet onto the shelter. If the holes in the sides of the shelter do not exactly line up with holes in Inlet shelter pan, it may be necessary to gently file away a small amount of material to align the holes. Most often the inlet holes will align by simply moving the inlet relative to the shelter until alignment. If the inlet hood does not fit onto acceleration plate, be sure that the spacers are not tightened until all of the washers, screws and spacers are loosely assembled. If inlet does not open properly, be sure the strut is in correct position and strut slot is aligned with shoulder bolt. If the top tub and bottom tub do not seal together, be sure alignment pin in top tub goes into alignment pin "hole" in bottom tub. It is also necessary that the alignment pins on 1st stage plate are aligned with the alignment pin "holes" on bottom tub. Adjustment hooks are provided to assure a seal between the top and bottom tube. To adjust, loosen nut with 3/8" wrench, adjust hook length until a tight seals develops then tighten nut. Shim plate clips are provided to assure the shim plate rests tightly against the first stage plate. Six adjustment screws and catches are provided to insure the seal between the inlet top section and the shelter base pan. Adjust catches by loosening the nuts with 3/8 wrench, adjust catch length until it seals then tighten. Do this for all 6 catches. A shelter base pan gasket 16"x 16" is provided to seal between the shelter base pan and inlet base pan. If a leak develops, replace this gasket. All gaskets should be inspected for age or misuse. Replace as necessary.

Appendix H.

SOP – Maintenance of Meteorological Station

- RM Young 05305 Wind Monitor-AQ: inspect bearings annually.
- Model SP-LITE pyranometer: routine cleaning in the field, no special requirements.
- Model TE525WS 8-inch diameter rain gage: routine cleaning in the field, no special requirements.
- CS705 snowfall adapter for the TE525WS 8-inch diameter rain gage: routine cleaning in the field and periodic changing and disposal of antifreeze.
- Model HMP45C temperature and relative humidity probe: routine cleaning in the field.
- Electrical Equipment: keep free of moisture.
- Batteries: periodically check charge, change when necessary.

Appendix I.

Sampling and Analysis Plan

Sampling and Analysis Plan

Air Quality Monitoring Program

Yerington Mine, Yerington, Nevada

Sample Date	Event #	Analysis	Primary Samples AM-1	AM-2	AM-3	AM-4	AM-5	AM-6	Field QC Samples Dup. (10%)	FB (5%)	TB (5%)
1/4/05	1	PM-10	1	1	1	1	1	1	1	1	
		TSP			1	1	1	1		1	
1/10/05	2	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			1
1/16/05	3	PM-10	1	1	1	1	1	1	1	1	1
		TSP			1	1	1	1		1	
1/22/05	4	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
1/28/05	5	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1		1	
2/3/05	6	PM-10	1	1	1	1	1	1	1	1	
		TSP			1	1	1	1			
2/9/05	7	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
2/15/05	8	PM-10	1	1	1	1	1	1	1	1	
		TSP			1	1	1	1			
2/21/05	9	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
2/27/05	10	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
3/5/05	11	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			1
3/11/05	12	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
3/17/05	13	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
3/23/05	14	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
3/29/05	15	PM-10	1	1	1	1	1	1	1	1	1
		TSP			1	1	1	1		1	
4/4/05	16	PM-10	1	1	1	1	1	1	1	2	
		TSP			1	1	1	1			
4/10/05	17	PM-10	1	1	1	1	1	1	1	1	
		TSP			1	1	1	1			
4/16/05	18	PM-10	1	1	1	1	1	1	1	1	1
		TSP			1	1	1	1			
4/22/05	19	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
4/28/05	20	PM-10	1	1	1	1	1	1	1	1	1
		TSP			1	1	1	1			
5/4/05	21	PM-10	1	1	1	1	1	1	1	1	1
		TSP			1	1	1	1			1
5/10/05	22	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
5/16/05	23	PM-10	1	1	1	1	1	1	1		1
		TSP			1	1	1	1			

Sampling and Analysis Plan

Air Quality Monitoring Program

Yerington Mine, Yerington, Nevada

Sample Date	Event #	Analysis	Primary Samples AM-1	AM-2	AM-3	AM-4	AM-5	AM-6	Field QC Samples Dup. (10%)	FB (5%)	TB (5%)
5/22/05	24	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			1
5/28/05	25	PM-10	1	1	1	1	1	1	1	2	
		TSP			1	1	1	1			
6/3/05	26	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			1
6/9/05	27	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
6/15/05	28	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
6/21/05	29	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
6/27/05	30	PM-10	1	1	1	1	1	1	1	1	2
		TSP			1	1	1	1			1
7/3/05	31	PM-10	1	1	1	1	1	1	1	1	1
		TSP			1	1	1	1			
7/9/05	32	PM-10	1	1	1	1	1	1	1	1	
		TSP			1	1	1	1			
7/15/05	33	PM-10	1	1	1	1	1	1	1		1
		TSP			1	1	1	1			
7/21/05	34	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
7/27/05	35	PM-10	1	1	1	1	1	1	1		2
		TSP			1	1	1	1			
8/2/05	36	PM-10	1	1	1	1	1	1	1		1
		TSP			1	1	1	1			1
8/8/05	37	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1		1	
8/14/05	38	PM-10	1	1	1	1	1	1	1		1
		TSP			1	1	1	1		1	
8/20/05	39	PM-10	1	1	1	1	1	1	1	1	
		TSP			1	1	1	1			
8/26/05	40	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1		1	
9/1/05	41	PM-10	1	1	1	1	1	1	1		1
		TSP			1	1	1	1			
9/7/05	42	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
9/13/05	43	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1		1	
9/19/05	44	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
9/25/05	45	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1		1	
10/1/05	46	PM-10	1	1	1	1	1	1	1	1	1
		TSP			1	1	1	1			

Sampling and Analysis Plan

Air Quality Monitoring Program

Yerington Mine, Yerington, Nevada

Sample Date	Event #	Analysis	Primary Samples AM-1	AM-2	AM-3	AM-4	AM-5	AM-6	Field QC Samples Dup. (10%)	FB (5%)	TB (5%)
10/7/05	47	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
10/13/05	48	PM-10	1	1	1	1	1	1	1	1	
		TSP			1	1	1	1			
10/19/05	49	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
10/25/05	50	PM-10	1	1	1	1	1	1	1		1
		TSP			1	1	1	1			
10/31/05	51	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
11/6/05	52	PM-10	1	1	1	1	1	1	1		2
		TSP			1	1	1	1			
11/12/05	53	PM-10	1	1	1	1	1	1	1		1
		TSP			1	1	1	1		1	
11/18/05	54	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
11/24/05	55	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			1
11/30/05	56	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
12/6/05	57	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			
12/12/05	58	PM-10	1	1	1	1	1	1	1	1	
		TSP			1	1	1	1			
12/18/05	59	PM-10	1	1	1	1	1	1	1		1
		TSP			1	1	1	1			
12/24/05	60	PM-10	1	1	1	1	1	1	1		
		TSP			1	1	1	1			1
12/30/05	61	PM-10	1	1	1	1	1	1	1		1
		TSP			1	1	1	1		1	
		Totals =			**610**				**61**	**31**	**31**
		Subtotals	61	61	122	122	122	122			

Notes

Dup. = Duplicate sample

FB = Field blank

QC = Quality control

TB = Trip blank

TSP = Total suspended particulates

Appendix J.

Laboratory Certifications
Severn Trent Laboratories

ALLEN BIAGGI, *Administrator*

(775) 687-4670

Administration
Facsimile 687-5856

Water Pollution Control
Facsimile 687-4684

Mining Regulation and
Reclamation
Facsimile 684-5259

STATE OF NEVADA
KENNY C. GUINN
Governor

R. MICHAEL TURNIPSEED, *Director*

Waste Management
Corrective Actions
Federal Facilities

Air Pollution Control
Air Quality Planning
Water Quality Planning

Facsimile 687-6396

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL PROTECTION

333 W. Nye Lane, Room 138

Carson City, Nevada 89706

Jodie Carnes
Severn Trent Labs WA1116
2800 George Washington W.
Richland, WA 99352
August 2, 2004

STATE OF NEVADA
CERTIFIED PARAMETER LIST-DRINKING WATER - WASTE WATER

Pursuant to regulations adopted by the State Board of Health and the Environmental Commission, the State of Nevada will accept data from this laboratory for the following contaminants under the Safe Drinking Water and Clean Water Acts.

Please be advised that it is the responsibility of the laboratory to make your clientele aware of changes. In particular it is important that the clients are aware of the loss of any previously certified parameters. If the laboratory subcontracts samples to other laboratories, it is the responsibility of the laboratory to ensure that the contracting laboratory is Nevada certified for all contracted parameters. The clients must be made aware of any subcontracted work.

Proficiency testing results should be submitted prior to **December 31, 2004.**

CERTIFICATE EXPIRATION DATE: July 31, 2005
This parameter list supercedes any previously issued parameter lists.

Radiochemicals	Methods	Radiochemicals	Methods
Cobalt-60	901.1	Gross Alpha	900
Zinc-65	901.1	Gross Beta	900
Cesium-134	901.1	Uranium (Nat)	D5174-91
Cesium-137	901.1	Uranium-234/238	D5174-91
Barium-133	901.1	Radium-226	903.1
Strontium-89	905	Radium-228	904
Stontium-90	905	Tritium	906

**********END OF REPORT**********

Summary of changes: Change of expiration date.

Jack Ruckman
Laboratory Certification Officer

8/3/04
Date

Tom Porta P.E., Bureau Chief
Water Quality Planning
Nevada Division of Environmental Protection

8/3/04
Date

OREGON

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

STL Richland

WA100002

2800 George Washington Way
Richland, WA 99352

IS GRANTED APPROVAL BY ORELAP. UNDER THE 2001 NELAC STANDARDS, TO PERFORM ANALYSES ON ENVIRONMENTAL SAMPLES IN MATRICES AS LISTED BELOW:

Potable Water
Non-Potable Water

AND AS RECORDED IN THE LIST OF APPROVED ANALYTES, METHODS, ANALYTIC TECHNIQUES, AND FIELDS OF TESTING ISSUED CONCURRENTLY WITH THIS CERTIFICATE AND REVISED AS NECESSARY.

ACCREDITED STATUS DEPENDS ON SUCCESSFUL ONGOING PARTICIPATION IN THE PROGRAM AND CONTINUED COMPLIANCE WITH THE STANDARDS.

CUSTOMERS ARE URGED TO VERIFY THE LABORATORY'S CURRENT ACCREDITATION STATUS IN OREGON.

Irene E. Ronning

Irene E. Ronning, Ph.D.
ORELAP Administrator
1717 SW 10th
Portland, OR 97201

ISSUE DATE: 1/10/2004
EXPIRATION DATE: 1/9/2005
Certificate No: WA100002-001

Oregon

Environmental Laboratory Accreditation Program

Public Health Laboratory
1717 SW 10th Avenue
Portland, OR 97201
(503) 229-5505
FAX (503) 229-5682
TTY (503) 731-4031

Department of Agriculture, Laboratory Division
Department of Environmental Quality, Laboratory Division
Department of Human Services, Public Health Laboratory

ORELAP Fields of Accreditation

ORELAPID: WA100002
EPACode: WA00001

Certificate: WA100002-001

STL Richland

2800 George Washington Way
Richland, WA, 99352

Issue Date: 1/10/2004 ***Expiration Date:*** 1/9/2005

As of 1/10/2004 this list supercedes all previous lists for this certificate number.
Cusotmers: Please verify the current accreditation standing with ORELAP.

MATRIX: Potable Water

Code	Reference		Description
30020203	ASTM D5174-91		Uranium - Laser Phosphorimetry
	Analyte Code	***Analyte***	
	3035	Uranium	
10112400	EPA 900.0		Radioactivity, Gross Alpha and Gross Beta
	Analyte Code	***Analyte***	
	2830	Gross-alpha	
	2840	Gross-beta	
10112808	EPA 901.1		Cesium/Iodine/Gamma emitters - Gamma ray spectrometry
	Analyte Code	***Analyte***	
	2765	Barium 133	
	2800	Cesium-134	
	2805	Cesium-137	
	2815	Cobalt 60	
	170	Iodine 131	
	3070	Zinc 65	
10113209	EPA 903.0		Radium by Alpha Spectrometer
	Analyte Code	***Analyte***	
	2965	Radium-226	
10113403	EPA 903.1		Radium 226 - Radon emanation
	Analyte Code	***Analyte***	
	2965	Radium-226	
10113607	EPA 904.0		Radium 228 by Beta Spectrometry
	Analyte Code	***Analyte***	
	2970	Radium-228	
10113801	EPA 905.0		Strontium Isotopes by Beta Spectrometry
	Analyte Code	***Analyte***	
	2995	Strontium-89	
	3005	Strontium-90	
10114008	EPA 906.0		Tritium
	Analyte Code	***Analyte***	
	3030	Tritium	
133	SM 18/19th ED 7500-U C		Uranium - Radiochemical
	Analyte Code	***Analyte***	
	3035	Uranium	

ORELAP Fields of Accreditation

ORELAPID: WA100002
EPACode: WA00001

Certificate: WA100002-001

STL Richland

2800 George Washington Way
Richland, WA, 99352

Issue Date: 1/10/2004 ***Expiration Date:*** 1/9/2005

As of 1/10/2004 this list supercedes all previous lists for this certificate number.
Cusotmers: Please verify the current accreditation standing with ORELAP.

MATRIX: Non-Potable Water

Code	Reference		Description
10112400	EPA 900.0		Radioactivity, Gross Alpha and Gross Beta
	Analyte Code	***Analyte***	
	2830	Gross-alpha	
	2840	Gross-beta	
10113403	EPA 903.1		Radium 226 - Radon emanation
	Analyte Code	***Analyte***	
	2965	Radium-226	
10113607	EPA 904.0		Radium 228 by Beta Spectrometry
	Analyte Code	***Analyte***	
	2970	Radium-228	